

REMARKS/ARGUMENTS

Claims 1 through 14 are currently pending in the application and stand rejected. In Section II of the Office Action Claims 1-2, 7, 10 and 11 were rejected under 35 U.S.C. Section 112, second paragraph. The amendments to Claims 1-2, 7, 10 and 11 address the Examiners objections set forth in Subsections 1.1 through 1.5 of Section II and in view thereof the objections should now be overcome.

In Paragraph 1 of Section III of the Office Action Claims 1-6 and 14 are rejected under 35 U.S.C. Section 102 (b) as anticipated by Yanagisawa (USS 5,351,626). In subparagraph 1.1 of the Office Action the Examiner sets forth his support for the rejection of claims 1-2 and 10 as being anticipated by Yanagisawa. The Examiner analogizes the member in the reference designated by reference characters (14a, 14b, 16a, 16b, 20) to Applicant's base member and the member designated by reference characters (50a-d) to Applicant's gripper, the member designated by reference character (22) to Applicant's block member and the member designated by reference characters (10a, 10b, 12a, 12b) to Applicant's foot member. However, Applicant's Claim 1, as now amended, calls for the base member having at least one gripper for releaseably gripping a tube extending through the tube sheet. The members (50 a-d) which Examiner analogized to Applicant's gripper were described in the patent as grounding sections, which merely appear to be pads that rest on the support surface on which the robot described in the reference moves. The grounding sections are clearly not a gripper for releasably gripping a tube extending through a tube sheet. In addition, as now amended, Claim 1 states that the block member is directly and rotatably connected to the base member and moveable in a linear direction, in a straight line, in a plane perpendicular to the plane the base member rotates in. Furthermore, the rotational and linear movement of the block member is stated to be relative to the base member. The Examiner analogized the block member to the member identified by reference character (22) in Yanagisawa and the base member to the member identified by reference character (14a, 14b, 16a, 16b, 20). However, the block member (22) of Yanagisawa does not move linearly with respect to the base member (14a, 14b, 16a, 16b, 20). More importantly, the block member (22) does not move linearly in a

plane perpendicular to a plane the base member rotates in, since when the member (14a, 14b, 16a, 16b, 20) and the member (22) move in the vertical or Z direction they move together. Accordingly, all the material elements recited in Claim 1 are not shown, described nor may they be inferred from the teachings of Yanagisawa. As stated in *In re Marshall* 578 F2d 301, 198 USPQ 344 (CAFC 6/30/78):

To constitute anticipation, all material elements recited in a claim must be found in one unit of prior art . . . an accidental or unwitting duplication of an invention cannot constitute an anticipation.

Claim 2, as now amended, calls for the manipulator of Claim 1 wherein the block member affects two directions of linear travel in a straight line between the foot member and the base member, each direction in a plane perpendicular to the other. The member (14a/14b/16a/16b/20) clearly does not move in a plane perpendicular to the plane of movement of member (10a, 10b, 12a, 12b). Accordingly, Yanagisawa does not describe, teach or show all the material elements of Claim 2.

Claim 10, as currently amended, calls for the manipulator of Claim 1 wherein the tube sheet is circular and the manipulator is sized to permit more than one independently operated manipulator of substantially the same design, to be suspended from an underside of a semi-circular portion of a tube sheet in an inlet or outlet section of a hemispherical channel head of a steam generator and be operated in parallel. Clearly none of the recitations of Claim 10 can be found in the Yanagisawa reference. Accordingly, Claims 1-2 and 10 should not rightfully be considered anticipated under 35 U.S.C. § 102(b).

In subsection 1.2 of Section III of the Office Action the Examiner sets forth the support for the rejection of Claims 4-6 and 14 under 35 USC § 102(b) in view of Yanagisawa. Claim 4 calls for the manipulator of Claim 1 wherein at least one of the grippers exerts a force in a direction to draw at least one of either the base member or the foot member associated with the at least the one of the grippers towards the tube sheet. First of all, the Yanagisawa reference does not disclose a tube sheet. Furthermore, as previously stated, the grippers the Examiner has referred to are merely foot pads that support the robot, under the force of gravity, on the surface on which the robot travels upon. While the

pads can be raised and lowered, they do not draw either the base member or the foot member to the surface. Accordingly Yanagisawa fails to describe, teach or show all of the material elements of Claim 4.

Claim 5 calls for the manipulator of Claim 4 including a standoff that cooperates with at least one of the grippers exerting a force to draw said base member and/or said foot member in the direction of a tube sheet, to maintain said base member and/or said foot member a predetermined fixed distance from the tube sheet. First of all, the Yanagisawa reference does not teach a tube sheet. Second of all, the standoff the Examiner's referring to are the legs of the robot which can be raised or lowered and do not maintain either of the members that the Examiner has analogized to applicant's base and foot, a predetermined fixed distance from the support surface that they contact. Accordingly Yanagisawa fails to describe, teach or show all of the material elements of Claim 5.

Claim 6 calls for the manipulator of claim 1 wherein the foot member and block member each have at least two spaced grippers. As mention above, the Yanagisawa reference does not disclose any grippers, especially in the context of releasably gripping a tube extending through a tube sheet. Accordingly, Yanagisawa fails to describe, teach or show all of the material elements of Claim 6.

Claim 14 is dependent upon claim 1 and distinguishes for the reasons noted for Claim 1. Accordingly, Claims 4-6 and 14 should not rightfully be considered anticipated under 35 USC § 102(b) by Yanagisawa.

In Section IV of the Office Action, paragraph 1, Claims 3 and 12 are rejected under 35 USC § 103(a) as being unpatentable over Yanagisawa in view of Stewart (US 4,662,465 A). Claim 3 is dependent upon Claim 2 which itself is dependent upon Claim 1. Claims 1 and 2 have been previously distinguished over Yanagisawa above. Claim 3 recites wherein the two directions of linear travel between the foot member and the base member are each in a plane perpendicular to the other while the foot member and the base member are maintained in parallel planes. The embodiment shown in Figure 12 of the

Yanagisawa reference clearly does not show two directions of travel each in a plane perpendicular to the other that maintains the foot member and the base member in parallel planes. While Stewart, in the embodiment shown in Figure 9, shows two bodies that can move with respect to each other in two directions of linear travel in both the horizontal and vertical directions it does not cure the other deficiencies noted for Yanagisawa. Furthermore, there is no teaching or suggestion in either reference as to how the coupling structure that enables the vertical and horizontal linear movement of Stewart in the embodiment shown in Figure 9 could be incorporated in the embodiment of Figure 12 of Yanagisawa and still accomplish the stated objectives of the Yanagisawa reference. Claim 12 is dependent upon Claim 1 and states wherein the manipulator is as much as approximately 30 lbs. Applicants could not find any reference in either Yanagisawa or Stewart to the teaching of a 30 lb. robot. In re Fritch 972 F2d 1260, 23 USPQ 2d 1780 (CAFC 8/11/92) the court stated:

The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification . . . here the Examiner relied upon hindsight to arrive at the determination of obvious. It is impermissible to use the claimed invention as an instruction manual or template to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This court has stated that “[o] ne cannot use hindsight reconstruction to pick and chose among isolated disclosures in the prior art to deprecate the claimed invention.”

Accordingly, neither Claim 3 nor Claim 12 should rightfully be considered obvious under 35 USC. § 103(a).

In Paragraph 2 of Section IV of the Office Action, Claim 7 is rejected under 35 USC § 103(a) as being unpatentable over Yanagisawa in view of Shunichi (US 4,070,561 A). Claim 7 calls for the manipulator of Claim 1 wherein each of the grippers includes insertion fingers that are respectively insertable into a corresponding one of said tubes extending through the tube sheet and each of said grippers further includes a limit switch that functions to verify a pre-selected length of insertion of the insertion fingers into the corresponding tube. It is noted that Claim 7 is dependent upon Claim 1 and Shunichi fails to cure the deficiencies previously noted for Yanagisawa with respect to Claim 1.

Shunichi teaches a manipulator with insertion fingers which are inserted in tubes extending through a tube sheet. The limits of movement of the insertion fingers are detected by limit switches, but that does not verify the degree of insertion of the insertion fingers in their respective tubes. Claim 7 provides verification. Accordingly, Claim 7 should be allowable for the individual limitations that it introduces in addition to those of the claim from which it depends.

In paragraph 3 of section IV, Claim 8 is rejected under 35 USC § 103(a) as being unpatentable over Yanagisawa in view of Amiet (US 5,559,843 A1). Claim 8 calls for the manipulator of Claim 1 wherein each of the grippers includes insertion fingers that are insertable into a corresponding one of said tubes extending through the tube sheet wherein the insertion fingers are biased against an interior of the corresponding tube by an internal piston that forces ball bearings to move up a tapered raceway between the piston and the interior of the insertion fingers forcing the insertion fingers out against the interior of the corresponding tube. As previously mentioned, Yanagisawa does not teach insertion fingers. Amiet teaches a device for mounting and extracting a locking sleeve of a guide tube in a dismountable end nozzle of a nuclear fuel assembly. The mounting and extracting device comprises a pole which is connected in a vertical position to handling and hoisting means disposed over the fuel assembly. The lower part of the pole carries an expansible bush engaged and fixed on the outer surface of the part by one of the ends of the bush and comprising longitudinally extending slots defining the cylindrically bendable strips. A group of balls mounted to be radially moveable in openings in a lower part of the pole and bearing against the bendable strips of the expansion bush are moveable between a retracted position and a position for expanding the bush, by a cylindrical cam connected to an actuating rod. The ball bearings described in the Amiet reference are thus mounted to be radially removable. In contrast, Applicant's Claim 8, as now amended, calls for an internal piston to force the ball bearings to move in the direction of movement of the piston, i.e., axially up the tapered raceway between the piston and the interior of the insertion fingers forcing the insertion fingers out against the interior of the corresponding tube. Accordingly, Amiet does not teach the limitations of Claim 8, nor does it cure the deficiencies previously noted for Yanagisawa. Accordingly,

Claim 8 should not rightfully be considered as obvious under 35 USC § 103 (a) over Yanagisawa in view of Amiet.

In Section IV, paragraph 4, Claim 9 is rejected under 35 USC. § 103(a) over Yanagisawa in view of Amiet and further in view of Schukei (US 4,643,472). Claim 9 calls for the manipulator of Claim 8 wherein the insertion fingers are spring biased in a gripping position when inserted a predetermined distance into the tubes to avoid the loss of gripping power if a motive power of the piston is lost. Yanagisawa and Amiet were applied as mentioned above. Schukei was cited as teaching a spring for providing a bias towards a gripping position. Applicant acknowledge that Schukei does teach a gripping device having a spring bias towards a gripping position. However, Schukei fails to cure the many deficiencies previously noted for Yanagisawa and Amiet. Accordingly, Claim 9 should not rightfully be considered obvious under 35 USC § 103(a) over Yanagisawa in view of Amiet and further in view of Schukei.

In Section IV, paragraph 5 of the Office Action Claim 11 is rejected under 35 USC § 103(a) as being unpatentable over Yanagisawa. Claim 11 as now amended calls for the manipulator of Claim 1, herein designated as the first manipulator, suspended from the underside of a semi-circular portion of a tube sheet in an inlet or outlet section of a hemispherical channel head of a steam generator including a second manipulator of substantially the same design as the first manipulator, suspended from the same semi-circular portion of the tube sheet wherein the first manipulator and the second manipulator are designed to be operable at the same time. Yanagisawa is clearly not intended to be suspended from the underside of a semi-circular portion of a tube sheet in a channel head of a steam generator. Yanagisawa is clearly intended to walk on a support surface in an upright orientation, relying on gravity to maintain contact with the support surface. There is no teaching or suggestion in the reference to having two robots suspended from the underside of a tube sheet in the same channel head of a steam generator working simultaneously. Accordingly, Claim 11 should not rightfully be considered obvious under 35 USC § 103(a) over Yanagisawa.

In Section IV, paragraph 6, of the Office Action Claims 12-13 are rejected under 35 USC § 103(a) as being unpatentable over Yanagisawa in view of Ward (US 3,913,452). Claim 12 calls for the manipulator of Claim 1 wherein the manipulator is as much as approximately 30 pounds. Claim 13 calls for the manipulator of Claim 12 wherein the manipulator supports a payload of as much as 70 lbs. While Ward does teach a manipulator weighing between 20 and 40 lbs. having at least 4 gripping sleeves that can each support an axial load of upward of 50 lbs, Ward does not cure the other deficiencies previously noted for Yanagisawa in respect of Claim 1, accordingly, Claims 12-13 should not rightfully be considered obvious under 35 USC. § 103(a) over Yanagisawa in view of Ward.

Thus, Applicants have shown wherein Claims 1 through 14 satisfy the formal requirements of the patent laws and patentably distinguish over the references. Therefore, reconsideration allowance and passage to issue of this application are respectfully requested.

Respectfully submitted,

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